

ABSTRACT OF THE DISCLOSURE

Slit light is projected onto the surface of an object, the reflected light is received using a video camera and analyzed by means of an image processor to thereby determine an equation of the surface onto which the slit light is projected. Then, an image is captured through normal image taking using the video camera and a straight line (line of sight) passing through the measuring point on the object and the center of the video camera is determined. Furthermore, parameters such as an affine transformation are determined by a comparison between the image of a characteristic area F of the object and a reference image. Then, the three-dimensional position and posture of the measuring point are determined from an intersection between the line of sight and the determined surface.